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in the hand, is made of the same thickness as the largest joint of the case, which shuts close on it, when drawn over the umbrella.

The number of joints of the case must depend on the length of the part that projects beyond the umbrella, and holds the ferule; but in general, three or four will be sufficient.

Twelve figures of the umbrella in various states is given in the specification of the patent, which will prevent any mistake from arising in its construction to those who wish to copy it when the patent is expired.

*Observations....* It will be difficult to make umbrellas of this kind sufficiently strong and durable without rendering them clumsy. If the cases are made to fit tight, they will soon wear out the covering of the umbrella; if the bones, runners, and joints are made small, so as to take up little room, they will soon break; and if the cases are made easy, and the other parts of the umbrella strong, it can scarcely avoid appearing too massive when shut up; perhaps the nice medium may be found, after many trials, which will best comprise the advantages without the inconveniences of the invention. As this, however, is a lady's patent, we must not criticise it too much, but will rather conclude with wishing it may be sufficiently profitable to her, to induce others of her sex to turn their attention to the useful arts, for which we are convinced, they are in no wise deficient in the abilities and talents requisite.

*Method of preventing the Accidents which frequently happen, from the Linch Pins of Carriages breaking and coming out; by Mr. J. Varty, Coach-maker, Liverpool.*

*Trans. Soc. Arts.*

In Mr. Varty's method of securing linch pins, a small groove is cut in front, close to the bottom of the aperture, through which the linch pin passes, in which a small piece of iron turns on a pivot in such a manner, that when the linch pin is removed it may be pushed back into the aperture, which the latter has just quitted, so that the wheel may

be taken off or put on; but when left to itself it hangs down in front of the wheel, so as to prevent its slipping off in case the linch pin should drop out or break, as it cannot be forced forward without breaking the pivot: the linch pin is fastened on in the usual manner.

This contrivance has been tried in a stage-coach, which has run from Liverpool to Litchfield, a distance of 84 miles, six days in every week, for six months; during which time several instances have occurred, in which the linch pins have broke or come out, but owing to their places being supplied by the means above described, no accident has happened. It is well known that coaches are so frequently upset, more from the linch pins breaking than from any other cause, which renders this invention of the more importance.

Several certificates were sent to the Society of Arts, both from stage-drivers, and others, of the many accidents which happen from linch pins breaking, and of the efficacy of Mr. Varty's contrivance; for which the Society voted him their silver medal.

*Account of a Red Earth found in Jamaica, which has all the properties of Italian Puzzolana.*

*Trans. Soc. Arts, v.5, p. 215.*

Mr. Brown of Jamaica, who sent a quantity of the red earth to the Society for the Encouragement of Arts, &c. thus describes his method of using it, and its properties.

"To one measure of the red earth, add two of well slacked lime, and one of sand; let them be well mixed and wrought like common mortar; with fair water, and made up in a heap: in about eight hours it will begin to acquire a hardness, and the heap must then be cut down and well mixed over again, and be smartly worked and wet morning and evening, for a whole week, before it is fit for use. After it is laid on, it must be strictly attended, while it dries and hardens, to close any crack that may then appear in it, for about forty eight hours, after which time it is generally out of danger.

But if any cracks should appear, after it is quite dry (when used for the